

WHAT IS CLAIMED IS:

1. A system for dynamic sampling comprising:
an input receiving an analog video signal; and
a sampling mechanism coupled to the input and
sampling the analog video signal utilizing a variable
sampling rate modulated for segments of the analog video
signal based upon spatial frequencies within the image
content contained within the analog video signal.

2. The system as set forth in Claim 1 wherein a first sampling rate is employed for a first segment of the analog video signal containing content having a first highest spatial frequency and a second sampling rate greater than the first sampling rate is employed for a segment of the analog video signal containing content having a second highest spatial frequency greater than the first highest spatial frequency.

1 3. The system as set forth in Claim 2 wherein the
2 sampling mechanism further comprises:

3 a plurality of analog filters each receiving the
4 analog video signal;

5 a plurality of analog-to-digital converters each
6 coupled to one of the plurality of analog filters and
7 having settings based upon the corresponding analog filter,
8 each analog-to-digital converter sampling an output of the
9 corresponding analog filter; and

10 combination logic selecting the output of one of
11 the analog-to-digital converters for each segment of the
12 analog video signal and combining the selected outputs.

1 4. The system as set forth in Claim 2 wherein the
2 sampling mechanism further comprises:

3 a single analog-to-digital converter receiving
4 the analog video signal and sampling the analog video
5 signal at a fixed rate;

6 a signal analysis unit analyzing samples from the
7 converter to select a sampling rate for each segment of the
8 analog video signal; and

9 a downsampling unit retaining samples from the
10 converter for each segment of the analog video signal based
11 upon the corresponding sampling rate selected by the signal
12 analysis unit.

1 5. The system as set forth in Claim 2 wherein the
2 sampling mechanism further comprises:

3 a first analog-to-digital converter receiving the
4 analog video signal and sampling the analog video signal at
5 a fixed rate sufficient to detect all spatial frequencies
6 of interest within the content contained within the analog
7 video signal;

8 a second analog-to-digital converter receiving
9 the analog video signal and sampling the analog video
10 signal at a variable rate; and

11 a signal analysis unit analyzing samples from the
12 first converter to select a sampling rate for each segment
13 of the analog video signal and adjusting the sampling rate
14 of the second converter.

15 6. The system as set forth in Claim 2 wherein the
16 sampling rate for each segment of the analog video signal
17 is at least twice a highest spatial frequency within
18 content contained by the corresponding segment of the
19 analog video signal.

1 7. The system as set forth in Claim 2 wherein the
2 sampling mechanism samples the analog video signal at a
3 first rate and transmits samples for at least one segment
4 of the analog video signal at second rate different than
5 the first rate.

1 8. A video receiver comprising:
2 an input receiving an analog video signal;
3 an output transmitting a digital video signal to
4 a display, a storage system, or another device; and
5 a sampling mechanism coupled to the input and
6 sampling the analog video signal utilizing a variable
7 sampling rate modulated for segments of the analog video
8 signal based upon spatial frequencies within the image
9 content contained within the analog video signal.

10 9. The video receiver as set forth in Claim 8
11 wherein a first sampling rate is employed for a first
12 segment of the analog video signal containing content
13 having a first highest spatial frequency and a second
14 sampling rate greater than the first sampling rate is
15 employed for a segment of the analog video signal
16 containing content having a second highest spatial
17 frequency greater than the first highest spatial frequency.

1 10. The video receiver as set forth in Claim 9
2 wherein the sampling mechanism further comprises:

3 a plurality of analog filters each receiving the
4 analog video signal;

5 a plurality of analog-to-digital converters each
6 coupled to one of the plurality of analog filters and
7 having settings based upon the corresponding analog filter,
8 each analog-to-digital converter sampling an output of the
9 corresponding analog filter; and

10 combination logic selecting the output of one of
11 the analog-to-digital converters for each segment of the
12 analog video signal and combining the selected outputs.

1 11. The video receiver as set forth in Claim 9
2 wherein the sampling mechanism further comprises:

3 a single analog-to-digital converter receiving
4 the analog video signal and sampling the analog video
5 signal at a fixed rate;

6 a signal analysis unit analyzing samples from the
7 converter to select a sampling rate for each segment of the
8 analog video signal; and

9 a downsampling unit retaining samples from the
10 converter for each segment of the analog video signal based
11 upon the corresponding sampling rate selected by the signal
12 analysis unit.

1 12. The video receiver as set forth in Claim 9
2 wherein the sampling mechanism further comprises:

3 a first analog-to-digital converter receiving the
4 analog video signal and sampling the analog video signal at
5 a fixed rate sufficient to detect all spatial frequencies
6 of interest within the content contained within the analog
7 video signal;

8 a second analog-to-digital converter receiving
9 the analog video signal and sampling the analog video
10 signal at a variable rate; and

11 a signal analysis unit analyzing samples from the
12 first converter to select a sampling rate for each segment
13 of the analog video signal and adjusting the sampling rate
14 of the second converter.

15 13. The video receiver as set forth in Claim 9
16 wherein the sampling rate for each segment of the analog
17 video signal is at least twice a highest spatial frequency
18 within content contained by the corresponding segment of
19 the analog video signal.

1 14. The video receiver as set forth in Claim 9
2 wherein the sampling mechanism samples the analog video
3 signal at a first rate and transmits samples for at least
4 one segment of the analog video signal at second rate
5 different than the first rate.

1 15. A method dynamic sampling comprising:
2 receiving an analog video signal; and
3 sampling the analog video signal utilizing a
4 variable sampling rate modulated for segments of the analog
5 video signal based upon spatial frequencies within the
6 image content contained within the analog video signal.

1 16. The method as set forth in Claim 15 wherein a
2 first sampling rate is employed for a first segment of the
3 analog video signal containing content having a first
4 highest spatial frequency and a second sampling rate
5 greater than the first sampling rate is employed for a
6 segment of the analog video signal containing content
7 having a second highest spatial frequency greater than the
8 first highest spatial frequency.

1 17. The method as set forth in Claim 16 further
2 comprising:

3 receiving the analog video signal at each of a
4 plurality of analog filters;

5 sampling an output of each analog filter
6 utilizing an analog-to-digital converter coupled to the
7 corresponding analog filter and having settings based upon
8 the corresponding analog filter; and

9 selecting the output of one of the analog-to-
10 digital converters for each segment of the analog video
11 signal and combining the selected outputs.

12 18. The method as set forth in Claim 16 further
13 comprising:

14 receiving the analog video signal at a single
15 analog-to-digital converter sampling the analog video
16 signal at a fixed rate;

17 analyzing samples from the converter to select a
18 sampling rate for each segment of the analog video signal;
19 and

20 retaining samples from the converter for each
21 segment of the analog video signal based upon the
22 corresponding selected sampling rate.

1 19. The method as set forth in Claim 16 further
2 comprising:

3 receiving the analog video signal at a first
4 analog-to-digital converter sampling the analog video
5 signal at a fixed rate sufficient to detect all spatial
6 frequencies of interest within the content contained within
7 the analog video signal; receiving the analog video signal
8 at a second analog-to-digital converter sampling the analog
9 video signal at a variable rate; and

10 analyzing samples from the first converter to
11 select a sampling rate for each segment of the analog video
12 signal and adjusting the sampling rate of the second
13 converter.

14 20. The method as set forth in Claim 16 wherein the
15 sampling rate for each segment of the analog video signal
16 is at least twice a highest spatial frequency within
17 content contained by the corresponding segment of the
18 analog video signal.